DOCUMENT RESUME

ED 177 548 CS 205 138

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TITLE Developing Elaborating Skills in Writing Based on Theories of Language and Learning.
PUB DATE 79
NOTE 23p.; Research prepared at Fordham University

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Composition (Literary); Curriculum Development; *Curriculum Research; *Descriptive Writing; Educational Research; *Experimental Curriculum; Nonverbal Communication; Secondary Education; *Writing Skills
IDENTIFIERS *Gagne (Robert M)

ABSTRACT

Seventy tenth grade English students participated in a study comparing the effectiveness of two composition curricula for improving writing skills. The investigator-designed writing curriculum was based on R. M. Gagnes' hierarchy of intellectual skills (verbal chains, discriminations, concrete concepts, defined concepts, rules, and higher-order rules) and emphasized items of nonverbal communication. It was compared to a commercially published curriculum that used a literary model for developing written elaborating skills. The comparisons the study addressed included the differences in the written elaborating skills the students acquired and the interactions between sex and treatment and between school and treatment. The results indicated that the quantity of writing was not affected in either treatment, that females were more verbal than males, and that students significantly increased their elaborating skills in descriptive writing with the experimental writing curriculum. (AEA)

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ED177548

DEVELOPING ELABORATING SKILLS IN WRITING BASED ON THEORIES OF LANGUAGE AND LEARNING

Elaine M. Kuntz

Background

Lloyd-Jones (1977) pointed out that " ... students need better instruction in writing if they are to survive as students" (p. 22). Based on the reports of teachers in professional journals such as College Composition and Communication and The English Journal, better methods of developing instruction in writing are needed to enable teachers, as well as students, to survive.

This study compared the effectiveness of two composition curricula for improving student writing skills. Student writing about ideas, feelings, and experiences was examined in terms of explicitness, i.e., communication of intended meanings to those to whom the message is aimed.

The capacity to benefit from instruction in written composition rests, in part, on the assumption that a capacity for attaining linguistic competence, defined by Chomsky (1965) as the "speaker-hearer's knowledge of his language" (p. 4), is present in native speakers of a language. Language serves as a means of communication as well as an organizer of human experience (Bernstein, 1975; Bruner, 1975; Britton, 1970; Vygotsky, 1962). Language develops and is modified by the language learning one has experienced (Blank, 1976; Bernstein, 1975), resulting in the availability of different linguistic usages for different speakers. Bernstein (1975), who investigated the issue of language development and language as

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it pertains to linguistic social class variety, postulated the existence of two different language codes. Coding may be understood as a process during which speech is selected, organized, and regulated (Bernstein, 1975, p. 131). According to Bernstein, environmental conditions, particularly the child's experiences with the verbal repertoire of his or her family and the language code to which s/he is exposed, profoundly effects the course of his or her language development.

Bernstein designated one language code as restricted and the other as elaborated and explained the differences between the codes in the following way: A restricted code develops when a child grows up and is exposed to an environment in which meanings are implicit and roles are assigned and maintained. Hypothesizing that the "most general condition for the emergence of this [restricted] code is a social relationship based on a common, extensive set of closely-shared identifications and expectations self-consciously held by the members" (1972, p. 36), Bernstein suggested that restricted code language will be context bound and that child control will be established through commands rather than explanations. It is important to note Bernstein's contention that for those whose language has developed into elaborated code, environmental conditions also include situations in which a restricted code occurs. Therefore, the elaborated code user has at his or her disposal both language codes, whereas the restricted code user can make use only of restricted code. According to Bernstein, "the codes refer to performance ['the actual use of language in concrete situations', (Chomsky, 1965, p. 4)] not to competence in the Chomsky [1965] sense of these terms" (p. 146).

Evidence of language code modification in a school environment has been reported regarding the speech of young children (Stecher, 1974; Gahagan and Gahagan, 1970). Examination of existing programs indicated that no systematic instructional program in code modification for older

children, in written language, was available. A composition curriculum was, therefore, developed and tested by the investigator.

In designing a curriculum for written code modification, it was decided that a step-by-step approach to the organization of the curriculum was appropriate. Written composition was subjected to a task analysis based on the intellectual skills factors identified by Gagne' (1977) as part of the learning hierarchy he posited. As a result of this analysis, the intellectual skills used to structure the curriculum included verbal chains, discriminations, concrete concepts, defined concepts, rules, and higher-order rules (Gagne' and Briggs, 1974).

Five units of instruction in written composition were developed. Three of the units centered on items of nonverbal communication. The nonverbal components included a study of color, facial expression, body position, space, time, and clothing. Identification and interpretation of these nonverbal items served as a focus for classwork as well as for the composition assignments included in the lessons within each unit. The investigator-designed, hierarchically-structured writing curriculum (referred to as E_1) entitled the Nonverbal Communication Curriculum, provided the first systematic test of the application of a Gagnéan hierarchy of intellectual skills for increasing written elaborating skills. To test its effectiveness, it was compared with a commercially-published, non-hierarchically-structured writing curriculum which also was directed at increasing the elaborating skills of students.

Each unit of the commercially published curriculum (referred to as E_2) used a literary model for developing written elaborating skills and, for the purposes of this study, this curriculum was called the Literary Model curriculum. Units were sequenced, insofar as their content was concerned, to conform as closely as possible to the content sequence of the Nonverbal Communication Curriculum. The units of the Literary Model Curriculum dealt with teaching students to be specific, to describe action, to describe sensory

experiences, to organize time relationships, and to be accurate in depicting relations.

Design and Research Questions

The design of the study included 70 subjects enrolled in four intact 10th-grade English classes in two urban senior public high schools. The two treatment groups were composed of two extant classes randomly selected within each school. The two classes of subjects in one school (hereafter referred to as School One) were homogenously grouped, of high ability, having a mean reading level of 11.3, and the average age was 15. The two classes in the second school (hereafter referred to as School Two) were of low ability, heterogenously grouped, having reading levels ranging from 4.4 to 11.3, and the average age was 17. Subjects in both ability groups were of the working class, 97% of whom were black and Puerto Rican. Two experienced senior high school English teachers were assigned and taught both an experimental (investigator-developed, E_1) and a control (commercially published, E_2) class of similar ability, to control for teacher effect.

Answers were sought to the following research questions:

1. What differences in the written elaborating skills of students would result from each treatment?

2. Would an interaction be found between sex and treatment?

3. Would an interaction be found between school (age, class placement, ability) and treatment?

Measurement

Two cartoon-character posters were designed and used to elicit the pre- and posttest compositions. The posters were similar with respect to the number of figures each contained, the number of colors used, and the design configuration, but different with regard to the emotional content of

the situation each depicted. All subjects, regardless of treatment placement, were shown and reacted to the same first poster when writing the pretest composition. All were shown and reacted to a second poster when writing the posttest compositions. A pilot study demonstrated that no posttest sensitization to the pretest poster would take place (Campbell and Stanley, 1963).

The effects of the treatments were determined by analysis of the pre- and posttest compositions on the six variables comprising the investigator-developed Scale for Scoring Written Composition. Hunt's (1965) T-unit, defined as consisting of a main clause standing by itself or a " ... main clause plus the subordinate clauses attached to or embedded within it" (p. 49), was incorporated into the Scale.

The first three variables of the Scale, analysis of the total number of words written, total number of T-units, and mean length of T-units in the students' pre- and posttest compositions, measured the effect of treatment on quantity of writing. Three additional variables were included specifically to determinelanguage code use in writing since Bernstein (1972) had suggested that coding affects the form of speech and not necessarily its quantity (p. 37). The variables measuring **language**code use in writing were the number of T-units written in restricted code, number of T-units written in restricted-elaborated code*, and number of T-units written in elaborated code. T-units in restricted code were defined as those T-units which contained material in which unexplained assertions, facts, or information were reported.

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*Restricted-elaborated code is a new language code designation which was incorporated into the Scale for use in the measurement of written language code use. During development of the Scale for Scoring Written Composition, a difficulty arose when some T-units which were identified as in restricted code when viewed in isolation, also were seen to be in elaborated code when viewed together. Analysis of this difficulty led to the restricted-elaborated code category.

Elaborated code T-units were defined as those T-units which were explanatory in nature. T-units designated as in restricted-elaborated code were related T-units which served to explain or elaborate upon one another. Examples were provided to illustrate each of the language code definitions.

Reliability of the Scale for Scoring Written Composition

Three raters scored the same five compositions independently after each rater completed training sessions in the use of the Scale for Scoring Written Composition and demonstrated confidence and facility in its use. An intraclass correlation computed for each of the six variables of the Scale showed correlations ranging from .89 to 1.00.

Results and Discussion

Quantity of Writing

A one-way analysis of covariance was computed to determine the differences resulting from use of the two treatments on the elaborating skills of students. The results of this analysis are shown in Table 1.

Insert Table 1 about here

It is interesting to note that although significant differences were found between treatments on the quality of writing, defined in terms of increasing elaborating skills, quantity of writing was not affected in either treatment. Several studies have shown that quantity of writing is a signal of language development (Loban, 1976; Mellon, 1967; Hunt, 1965). The results of this study indicate that elaborating skills can be increased without changing the quantity of writing.

Another factor to be taken into account when examining the lack of significant change in the measures of length is that increases in length of T-units occur very slowly, taking long periods of time in which to develop (Loban, 1976; Hunt, 1965). This experiment took place over a relatively

short period of time--approximately seven weeks, and it may be that the short time period involved had more to do with the relatively static pre- and posttest T-unit length shown than anything inherent in either treatment.

Language Code Use

After treatment, students in the experimenter-designed curriculum group (hereafter referred to as E_1) wrote significantly fewer ($F = 10.99$, $p < .001$) T-units in restricted code, with a posttest mean of 12.3, than did students in the control curriculum group (hereafter referred to as E_2) whose posttest mean was 17.3. The E_1 group wrote significantly more T-units in restricted-elaborated code ($F = 21.8$, $p < .001$) with a posttest mean of 3.4 than did the E_2 group, whose posttest mean was 1.2. The effect of treatment on number of T-units written in elaborated code was that the E_1 group, with a posttest mean of 2.2, wrote more elaborated code T-units than did the E_2 group whose posttest mean was 1.3 ($F = 9.8$, $p < .01$).

Sex and Treatment Interaction

Computation of a two-way analysis of covariance revealed that only on the first variable, total number of words, did a significant interaction occur between sex and treatment. The data are presented in Table 2.

Insert Table 2 about here

Although females in both treatment groups wrote a significantly greater number of words than did males, the females in the E_1 group wrote even more words than did females in the E_2 group. In addition, although there were no other sex and treatment interactions shown, females wrote significantly more T-units, on the posttest, in restricted and in restricted-elaborated code than did males. This finding seems to confirm previous findings (Loban, 1976; O'Donnell, Griffin, and Norris, 1967) that females are more verbal than males, at least in the sense that they may write more and longer T-units.

School and Treatment Interaction

Two diverse groups of students participated in the study: School One consisted of a homogenous (high) ability group with a mean age of 15.

Insert Table 3 about here

School Two students were heterogenously grouped (varied abilities) with a mean age of 17. Therefore, all results across school groups subsumed effects of age, class grouping, and ability. Table 3 shows that no significant interaction between school and treatment was found on any of the variables of the Scale for Scoring Written Composition. However, a significant school difference was found on all the variables except on the number of T-units written in restricted-elaborated code. School One students, in both treatments, wrote a significantly greater number of words ($F = 35.2$, $p < .001$), a greater number of T-units ($F = 19.1$, $p < .001$), longer T-units ($F = 8.9$, $p < .01$), more T-units in restricted code ($F = 10.4$, $p < .01$), and more T-units in elaborated code ($F = 23.2$, $p < .001$), than did School Two students. The significant differences found seem to be a reflection of the lower variability in the group of high ability students in School One.

One interpretation of the significantly greater number of T-units written in restricted-elaborated code by males and females in both schools is that elaborated skills develop slowly and that learning to write in elaborated code is a developmental process which requires an intermediary, transitional stage between restricted and elaborated code. It is possible to hypothesize an hierarchy in the development of elaborating skills. The first stage might be that in which the greatest number of T-units written are in restricted code. The second stage of development would seem to be writing in which explicitness (i.e., in which statements are explained rather than asserted) is achieved through the linking of individual T-units (identified as restricted-elaborated

code in this study). The final stage would seem to be one in which explicitness occurs within single T-units. As elaborating skills increase, a reduction of the number and percentage of T-units written in restricted code might take place and a concomitant increase in the number and percentage of T-units written in restricted-elaborated and in elaborated code might be evident. The students in the School Two, E_2 group, made their largest gains in the stage hypothesized to be one of transition; i.e., number of T-units in restricted-elaborated code, which suggests that the E_1 treatment would seem to provide an effective method for increasing the elaborating skills of students classified by their reading levels as low ability students.

Language Code Use in Percentages

Table 4 shows, on the three variables measuring language code use (i.e., number of T-units in restricted, restricted-elaborated, and elaborated code), the mean percentage and percentage of change scores of the E_1 and E_2 groups of both schools and Figure 1 illustrates the percentage of change which occurred as a result of the treatments in each school.

Insert Table 4 about here

Insert Figure 1 about here

The results of the previous tables are presented more graphically here: the E_1 groups had decreases in percentages of restricted code and increases in percentages of restricted-elaborated, and elaborated code after treatment. The results for the E_2 groups were exactly opposite in direction: increases in restricted code percentages and decreases in restricted-elaborated and elaborated code percentages were found.

The different approaches to the teaching of composition found in

the two curricula tested probably account for their different effects on elaborating skills. That is, the E_1 group was taught to be explicit in its compositions through specific instructions for examining, identifying, and utilizing nonverbal phenomena in order to relate the phenomena observed to the behavior, situation, or object being described in the writing. The E_2 curriculum group focused on specificity without the requirement of explanations of the relationships between the details described and any assumed meanings and utilized literary models to improve composition skills.

The significant increases shown by both high and low ability students in the E_1 group in the number of T-units they wrote in restricted-elaborated and in elaborated code seem to indicate that the hierarchical structuring of instruction, which is designed to increase elaborating skills and which takes place over a relatively short period of time, is effective in achieving its goal. It seems reasonable to conclude that planning hierarchically-structured units of instruction over longer periods of time would result in highly significant increases in elaborating skills.

Implications

The results and conclusions of the study suggest implications in two areas--language and learning:

Language

1. Gumperz (1971) pointed out that environmental constraints on language may limit a person's "degree of communicative control" (p. 122) and Bernstein postulated that those who have developed as restricted code users have access only to restricted code, whereas elaborated code users have access to both restricted and elaborated code.

The "communicative competence" (Hymes, 1972) of each speaker may be modified by the linguistic world in which a person finds him or herself. That is, for each person there may be two different communication

worlds: the world in which one participates as a comfortable speaking and listening member, communicating with relative ease in speech understood and respected by those who are part of this world. The other world is the one away from home and neighborhood, in which one may be a stranger; that is the world of jobs, school, and the larger society. Therefore, to be restricted in one's language code is to face the possibility of suffering from a degree of communicative incompetence when away from the close ties of home, family, friends, or social group, and thus limit one's educational, social, or vocational opportunities.

No degradation of restricted code use is implied in pointing out that although restricted code users can function very well in their own group, using speech which is colorful, abbreviated, and/or metaphoric, they may experience great difficulty when outside that group. Indeed, it would be difficult for those who are essentially elaborated code users to function without at least some use of restricted code when or where its use is appropriate. For the restricted code user being in a world outside of of family, friends, or social group may mean being in a world in which linguistic demands may be made which cannot be met. An effective reduction of this person's potential academic or occupational growth may result from such linguistic restrictedness. "Elaborated code spoken here" might be the emblem of the world of schools, vocational advancement, and society.

What, then, is the obligation of teachers? The results of this study indicate that teachers can provide students with access to both codes through the ways in which they develop and structure curricula. Can teachers do less than at least try to enlarge the code capabilities of students, thus enabling those students to have a linguistic chance of obtaining the jobs they seek or attending the schools they wish to attend?

Insofar as this investigator has determined, previous programs

and studies concerned with the development of elaborated code have been undertaken (Stecher, 1974; Gahagan and Gahagan, 1970) only with children in the lower grades of school. In addition, any programs of instruction have been carried out for the short periods of time during which such studies have taken place. Based on both the social implications of restricted code use as well as the results of this and other studies, sustained programs for the development of elaborated code should be a goal of instruction in upper as well as lower grades, for the "school's central task ... is to offer all children the possibility of exploring the boundaries of man's consciousness ..." (Bernstein, 1975, p. 117).

2. "For a teacher, the recognition of the interrelationship of the primary process of language learning and the secondary process of language education has powerful implications for classroom organization and procedure" (Brossell, 1977, p. 41). Depite calls (King, 1978; Emig, 1971) for a fundamental change of viewpoint "from language product to language process" (Brossell, 1977, p. 47), the finished product, that is, the composition ready for grading, rather than the process of composing has been and continues to be the focus of composition instruction in the classroom.

As a result of this study, a hierarchy for the development of elaborated code was posited as one process in the development of language. In order to fully utilize the hypothesized elaborated code hierarchy, methods of determining a student's "level of elaboratedness" would help teachers to design instructional units that would facilitate student acquisition and use of elaborated code.

3. Although increasing composition length was not a goal of instruction in either treatment, both treatments showed an arithmetic mean increase in measures of length such as total number of words and number of T-units written. In both curricula instruction was specific, objectives were made clear to both students and teachers, evaluations were

based on these same objectives, and both were carried out on a continuing basis. The lesson to be learned for those who are interested in increasing composition length seems clear: composition instruction which is specific, clear, and carried out continuously can be expected to facilitate increasing composition length.

Learning

1. Since a prime goal of instruction is learning, it seems appropriate to design instruction which is based on consideration of the ways in which learning takes place. The results of this study show the usefulness of Gagne's learning theory in promoting the learning of composition skills. Application of Gagné's theory, which posits an hierarchical ordering of intellectual skills acquisition, included analyzing the specific tasks pertinent to learning the skills needed to attain the objectives of the curriculum, and facilitated both the planning of instruction as well as the learning of the skills involved. In contrast to the use of a non-hierarchically-structured curriculum, students significantly increased their elaborating skills in writing, which was the objective of instruction. Basing a curriculum upon learning theory had the additional benefit of facilitating the job of the designer by providing a systematic method for planning lessons and units of instruction. Gagné's theory has been accused of being useful only for the teaching of science and math; this study has shown that it is useful for teaching composition.

2. Because writing represents reality abstractly by utilizing action, imagination, and symbolism (Bruner, 1971), both Emig (1977) and Vygotsky (1962) alluded to the link between language and learning, describing writing as a unique linguistic process and connecting this process to cognitive development. An hierarchical ordering has been posited both for the development of language (Britton, 1970) and learning (Gagne', 1977). The developers of composition curricula who utilize the idea that " ... language

is a tool or instrument of thought or problem solving" (Bruner, 1975, p. 62) might, by combining the knowledge about the hierarchical development of language and the hierarchical structuring of intellectual skills in the design of instruction, facilitate student cognitive growth and development as well if they focus on this link.

Suggestions for Further Research

1. " ... learning to write consists of learning to master different kinds of writing, and a student who is master of one may not be master of all" (Courts, 1977, p. 5). The descriptive mode was taught in this study. It would be beneficial to develop hierarchically-structured composition curricula to teach students writing in the argumentative, expository, and narrative modes of writing.

2. Both Combs (1976) and O'Hare (1973) found significant gains were made by students involved in a program of sentence-combining exercises which took place in an a-rhetorical setting. The question of whether even greater gains might be made when the rhetorical setting is a curriculum specifically designed to increase elaborating skills (as is the case of the E_1 curriculum) seems to be a fruitful area for investigation.

3. Finally, it would be useful to investigate whether teaching aimed specifically at increasing elaborating skills in writing would result in an increase in spoken elaborating skills. In Loban's (1976) longitudinal study of language development he found that "the oral and written averages are similar for any given group in any given year. In other words, in reference to average number of words per communication [T] unit, the subjects tend to speak and write in units of virtually the same average length" (p. 35).

Table 1

One-Way Analysis of Covariance of the Scores of the E_1 and E_2 Groups on the Six Variables of The Scale for Scoring Written Composition

Variable	Treatment Group	Pretest Mean	S. D.	Posttest Mean	S. D.	F Ratio
Total Number of Words	E_1	155.35	72.1	204.64	97.3	0.14
	E_2	181.48	80.7	230.57	87.1	
Number of T-units	E_1	14.8	8.5	17.8	8.3	0.55
	E_2	16.6	7.8	19.8	7.6	
Mean Length of T-units	E_1	11.2	3.2	11.7	2.8	0.05
	E_2	11.1	2.4	11.8	3.1	
Number of T-units in Restricted Code	E_1	12.9	7.6	12.3	6.9	10.99
	E_2	12.0	6.7	17.3	6.7	
Number of T-units in Restricted-Elaborated Code	E_1	1.1	1.6	3.4	2.3	21.8
	E_2	3.0	3.5	1.2	1.8	
Number of T-units in Elaborated Code	E_1	0.7	1.1	2.2	1.8	9.8
	E_2	1.6	1.7	1.3	1.3	

$df_{1,67}\ F_{.001} = 11.8$

$df_{1,67}\ F_{.01} = 7.04$

$df_{1,67}\ F_{.05} = 3.98$

Table 2

Two-Way Analysis of Covariance of the Sex and Treatment Interaction of Students in the E_1 and E_2 Groups on the Six Variables of the Scale for Scoring Written Composition

Variable	Sex	Treatment Group	Pretest Mean	S. D.	Posttest Mean	S. D.	F Ratio Sex	F Ratio Treatment	F Ratio Interaction
Total Number of Words	Female	E_1	182.7	90.7	274.0	91.3	6.3	.09	4.6
	Female	E_2	197.3	83.7	243.8	75.4			
	Male	E_1	138.6	55.9	162.3	77.8			
	Male	E_2	157.1	76.1	210.1	105.5			
Number of T-units	Female	E_1	18.5	11.7	23.4	6.7	5.6	.006	2.5
	Female	E_2	18.9	8.6	21.1	7.7			
	Male	E_1	12.5	5.1	14.4	7.6			
	Male	E_2	13.0	5.5	17.9	7.6			
Mean length of T-units	Female	E_1	10.6	3.1	11.9	2.7	1.41	.001	.002
	Female	E_2	10.6	1.8	11.9	3.2			
	Male	E_1	11.5	3.3	11.6	3.0			
	Male	E_2	12.0	3.0	11.7	3.3			
Number of T-units in Restricted Code	Female	E_1	15.7	10.8	16.4	6.5	6.07	7.25	1.09
	Female	E_2	13.5	7.3	18.6	7.2			
	Male	E_1	11.1	4.5	9.8	6.1			
	Male	E_2	9.9	5.7	15.5	5.9			
Number of T-units in Restricted-Elaborated Code	Female	E_1	1.3	1.8	4.5	2.2	4.26	26.9	2.27
	Female	E_2	3.5	3.7	1.4	1.9			
	Male	E_1	1.0	1.5	2.6	2.3			
	Male	E_2	2.2	3.3	.9	1.8			
Number of T-units in Elaborated Code	Female	E_1	1.4	1.6	2.5	1.6	2.5	11.8	1.2
	Female	E_2	2.1	1.8	1.2	1.1			
	Male	E_1	.3	.8	2.0	2.1			
	Male	E_2	.9	1.4	1.5	1.8			

$F_{.001}(1,66) = 11.8$

$F_{.01}(1,66) = 7.04$

$F_{.05}(1,66) = 3.98$

Table 3

Two-Way Analysis of Covariance of the School and Treatment Interaction of Students in the E_1 and E_2 Groups on the Six Variables of the Scale for Scoring Written Composition

Variable	School	Treatment Group	Pretest Mean	S. D.	Posttest Mean	S. D.	F Ratio School	F Ratio Treatment	F Ratio Interaction
Total Number of Words	One	E_1	184.1	71.4	253.6	79.9	35.2	.05	.24
	One	E_2	201.3	80.7	264.6	63.6			
	Two	E_1	102.3	39.6	114.1	57.3			
	Two	E_2	107.8	26.2	104.0	34.7			
Number of T-units	One	E_1	17.1	9.5	21.1	7.6	19.1	.01	.09
	One	E_2	18.0	8.2	22.1	6.7			
	Two	E_1	10.4	4.2	11.7	6.1			
	Two	E_2	11.2	3.7	11.5	5.3			
Mean Length of T-Units	One	E_1	11.7	3.7	12.6	2.8	8.9	.12	.1
	One	E_2	11.4	2.3	12.4	3.1			
	Two	E_1	10.2	1.9	10.0	2.2			
	Two	E_2	10.1	2.9	9.5	2.6			
Number of T-units in Restricted Code	One	E_1	14.5	8.8	14.1	7.5	10.4	4.7	.8
	One	E_2	12.4	7.3	19.0	6.3			
	Two	E_1	10.0	3.9	9.0	4.5			
	Two	E_2	10.2	4.6	11.2	5.4			
Number of T-units in Restricted-Elaborated Code	One	E_1	1.5	1.9	3.9	2.2	3.7	17.1	.5
	One	E_2	3.6	2.6	1.3	2.0			
	Two	E_1	.4	1.0	2.2	2.5			
	Two	E_2	.7	1.3	.3	2.4			
Number of T-units in Elaborated Code	One	E_1	1.1	1.3	3.1	1.7	23.2	8.6	2.0
	One	E_2	1.9	2.0	1.7	1.3			
	Two	E_1	.1	.3	.5	.9			
	Two	E_2	.3	.5	0	0			

$F_{.001}(1,66) = 11.8$

$F_{.01}(1,66) = 7.04$

$F_{.05}(1,66) = 3.98$

Table 4

Mean Percentage Scores of E_1 and E_2, School One and School Two Students Showing Number of T-units, Pretest, Posttest, and Change Mean Percentages on Three Variables of the Scale for Scoring Written Composition: Number of T-units in Restricted, Restricted-Elaborated, and Elaborated Code

Treatment Group	School	Mean Pretest Number of T-units	Mean Pretest Percentages			Mean Posttest Number of T-units	Mean Posttest Percentages			Mean Change Percentages		
			R	R-E	E		R	R-E	E	R	R-E	E
E_1	One	17.5	83.4	9.2	7.4	24.9	62.3	20.1	17.6	-21.1	+10.9	+10.2
E_2	One	18.1	67.2	21.5	11.4	22.1	86.1	5.7	8.1	+18.9	-14.8	-3.3
E_1	Two	10.5	96.5	2.7	.8	11.8	79.2	15.9	4.9	-17.3	+13.2	+4.1
E_2	Two	11.3	89.4	7.6	3.0	11.6	97.1	2.9	0	+7.7	-4.7	-3.0

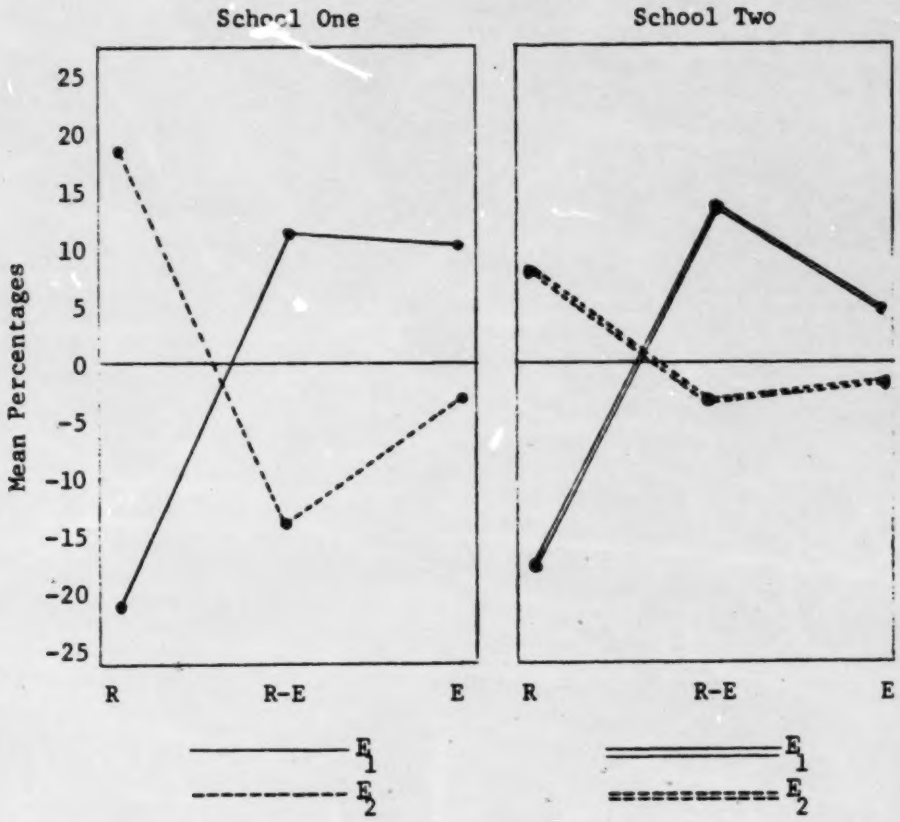

Figure 1

Percentage of Change on Three Variables: Restricted, Restricted-Elaborated, and Elaborated Code of the Scale for Scoring Written Composition for the E_1 and E_2 Groups of School One and School Two

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